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# ≡ THE ≡ MUCKALLEE MONITOR

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"Stripping the land of its rich surface covering and its further depletion by gullying as a result of unrestrained erosion by wind and water, following haphazard careless methods of land use, are the agencies that are creating now and large areas of essential desert. The destructive effects of man induced erosion resulting from the removal of nature's stabilizers of trees, grasses and shrubs have brought the United States face to face with a crisis in land use."

H. H. BENNETT,  
Chief, Soil Conservation Service.

≡ U.S. DEPARTMENT of AGRICULTURE ≡  
Soil Conservation Service  
≡ Project No. 37 ——— Americus, Ga. ≡







# Editorial

## Soil Erosion Takes a Heavy Toll

An inventory of the economic losses from soil erosion runs into staggering figures and although the losses in dollars and cents are enormous this is only one phase of the devastation that follows in the wake of muddy water.

Erosion takes a toll direct from the land by removing the rich top soil and in addition carries away in solution valuable plant food that must be replaced by heavy investments in commercial fertilizer if good crop yields are to be maintained. Land denuded by sheet erosion and cut deep with gullies soon becomes unprofitable and is abandoned causing a loss to the community through reduced incomes and lowered standards of living. Land values have shrunk as much as fifty cents per acre per year in sections where erosion is active and the greater part of this shrinkage is due to soil losses. When the cash income from an agricultural area is reduced, the whole community suffers because every dollar produced directly from the soil means several dollars in new business for the banker, the merchant, the doctor and all the other business interests.

Schools and other public and civic interests suffer when property values and incomes shrink, therefore soil conservation is of vital interest to every individual in the community.

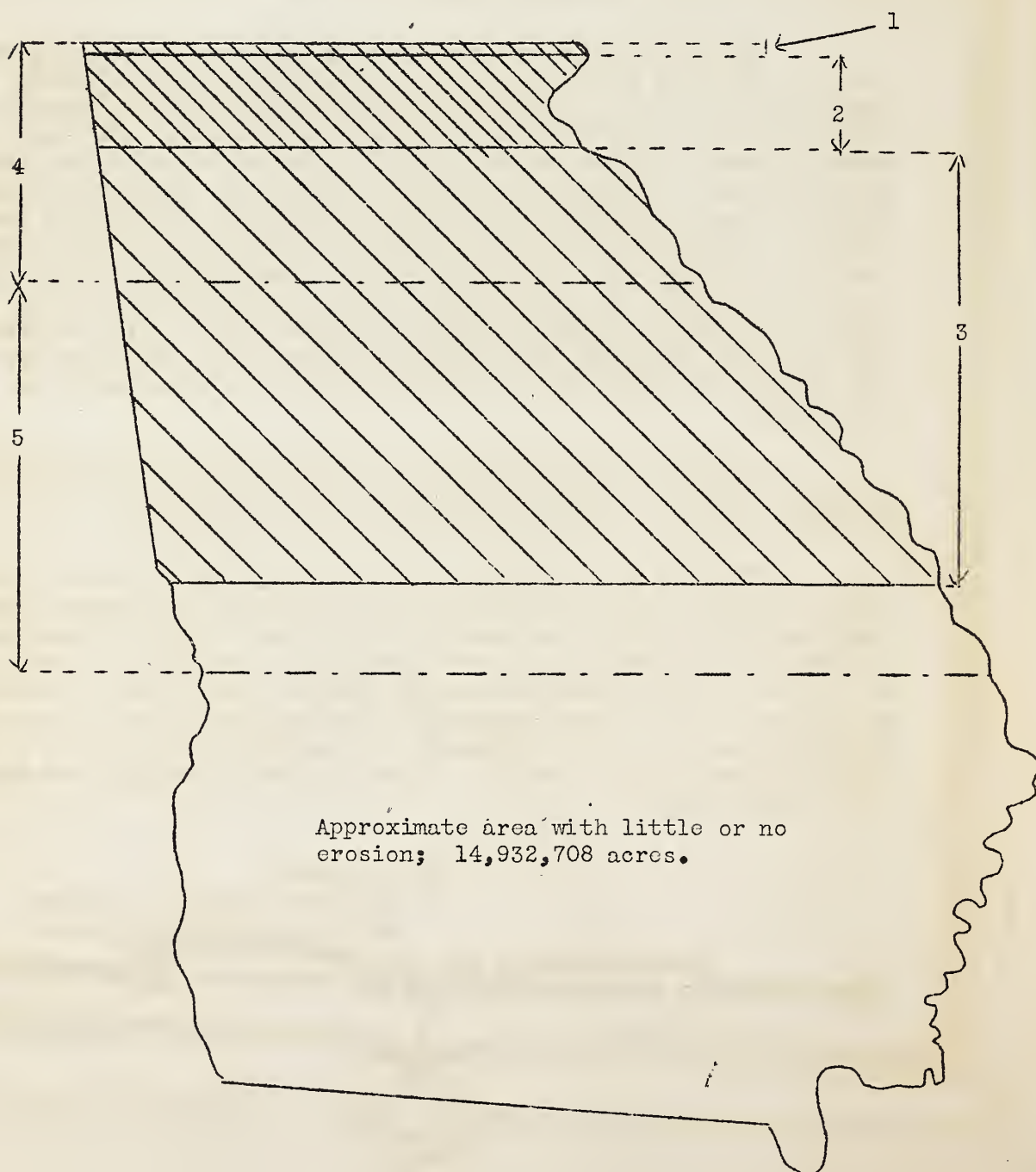
The Soil Conservation program is designed to protect the land resources through demonstrations and through cooperation with land owners to control the wastage of soil and moisture resources on crop land, grazing and forest lands, and to rebuild the fertility of the soil through erosion control combined with adjusted farming operations in a land-use program in a balanced farm plan to include permanent pastures, reforestation, and cultivated crops with a definite system of crop rotation, terracing, strip cropping and surface water control.

H. G. DASHER,  
Assistant Regional Director,  
Soil Conservation Service.

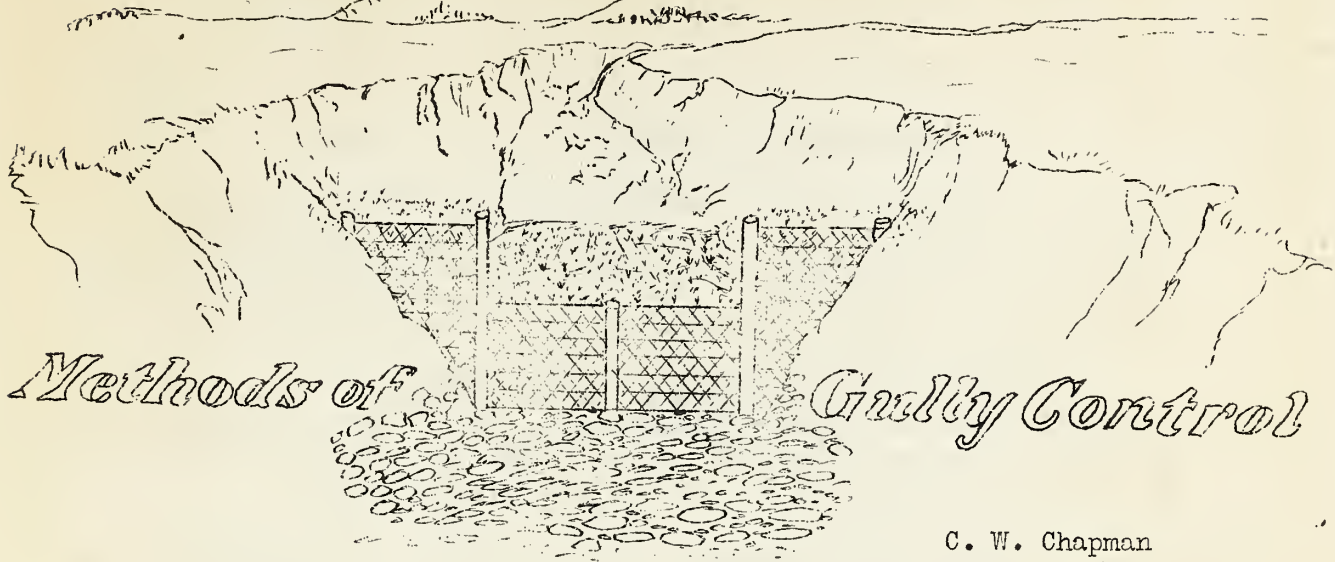


If all the soils in Georgia that have been damaged by erosion could be put into one field there would be:

1. A strip approximately three miles wide across the state containing 231,961 acres destroyed by gullying.
2. Next a strip about twenty-seven miles wide consisting of 2,263,403 acres affected by severe gullying.
3. Then a strip about 130 miles wide containing 17,636,924 acres affected by occasional gullies.
4. Sheet erosion has removed three-fourths of the top soil and some of the subsoil from 6,222,655 acres. This is equal to a 60-mile strip across the state.
5. From one-fourth to three-fourths of the top soil has been removed by sheet erosion on 15,905,598 acres. This is equal to a strip about 110 miles wide.



# ~ENGINEERING~



As stated in the Monitor a month ago, the function of the Engineering Department is divided into two phases; terracing and gully control. In the article from this department a month ago an error resulted in a statement that we were "primarily interested" in the terracing part of our program. The statement should have read "At present, we are primarily interested in the terracing part of our program," which at that time was true.

Now that crops are planted and the fields are being cultivated our terracing work is temporarily held up and we are devoting the major part of our time and efforts to gully control work. In endeavoring to control active gullies, the problem is again one of controlling run-off water. To do this, we install a system of dams and spillways in the gully, locating them in such places as are necessary to conduct the water down the slopes at low velocities and thus reduce the soil carrying capacity.

Water flowing down hill carries a certain amount of soil with it and the faster the water flows the more soil it carries. If we can slow down this flow we can keep a considerable amount of soil on the farm which would otherwise be carried away. We have a considerable number of these dams already constructed. Look at one after a few rains. Observe the soil deposited behind the dam, soil that otherwise would have been carried away, and you will readily see the effectiveness.

The structures we are building are of two general types:

- (1) Temporary dams, of wire and sod; creosoted timber dams; and brush and wire dams, and



(2) Permanent dams, of concrete and stone masonry.

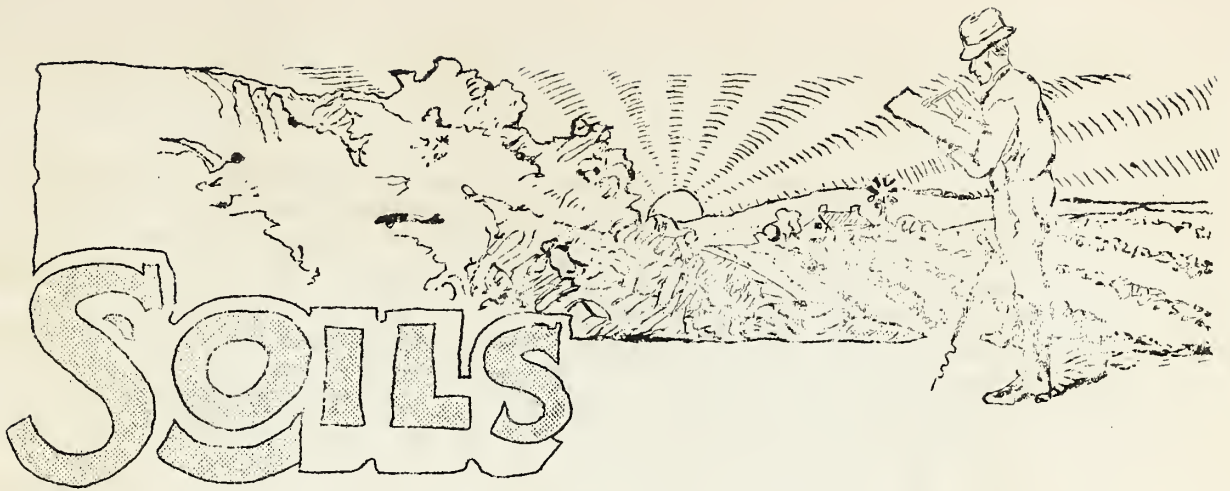
Temporary dams are installed for the purpose of collecting a deposit of silt above the dam that will promote plant growth. Plantings will be made by the forester as soon as sufficient soil has accumulated to warrant such. When the temporary dam has rotted out, there will be a living dam of vegetation to stabilize the gully.

Permanent dams of concrete or stone masonry are constructed in gullies that are very active and where the watershed draining into the gully is so large that the force of the large volume of water to be handled will be too great for vegetation to withstand.

Before these structures are installed a survey is made of the area draining into a gully. The volume of water to be handled is determined and the structures are designed and placed accordingly.

Repairs may be necessary from time to time to develop a structure that will withstand heavy rains. The Soil Conservation Service will keep these structures under observation and will appreciate it if the cooperator will advise promptly when any repairs are necessary.





## NORFOLK AND RUSTON SANDY SOILS OF THE MUCKALEE AREA

- W. C. Huggins -

In the center of the area, especially near the larger streams, occur fairly large areas of deep sands, of the Norfolk and Ruston series. A large portion of this land is being cultivated to most of the various crops grown within the area. These soils are naturally adapted to the growing of yellow pine, and produced some of the finest timber found in the southeast. Now all this timber is gone and where the soil has not been cleared, it is supporting principally a growth of scrub oak. Not only the yellow pine is grown successfully, but most of the varieties of pines found in the south, including the slash pine, do well on these soils. However, they do not make so rapid a growth as on some of the better soils.

The soils department usually recommends that these areas be removed from cultivation and planted with trees. However, on some farms the majority of the land is composed of these deep sands, and it is impossible to remove them from cultivation. These sands present quite a problem. Their susceptibility to erosion is less than any of the other upland soils in the area, but their adaptability to different crops is very limited. As the inherent fertility of these soils is so low, they are usually allowed to remain idle for a period of years, then farmed for one year and allowed to rest again. The general practice in this area is to fence off these sands and use them for pasture when they are not being cultivated. They are usually fenced off in conjunction with the woodland and bottom lands which are used continuously for pasture. For a short period in the early spring these sands produce a meager pasturage, consisting of some of the native grasses and herbs.

About the only crop that these soils will grow successfully is watermelons and then a crop can be grown only once in every four to five years. However, these soils are used quite extensively for growing corn, and to a lesser extent for growing cotton, but the yields are usually low. Fair yields of corn are obtained during very favorable seasons, when this land has remained idle for several years before planting. The farmers consider it more economical to allow this land to remain idle for several years, than to cultivate it more often by using cover crops.

Although these soils are less susceptible to erosion than any of the other upland soils, erosion does occur on the steeper slopes in the form of gullies of various size and extent. Very little sheet erosion has been observed. On most of the areas, regardless of slope, terraces have not been recommended by the soils department. The department believes that effective control measures can be obtained at a minimum cost by contour farming and strips, with possible terraces on the steeper areas built at a much greater interval than used on the heavier clay soils, or throw up several terraces in a field along the contour lines which will not only provide adequate erosion control together with strips, but will act as a marker for the contour lines. A serious problem encountered with terraces on these sands is to get them to hold. As most of these sands are loose and incoherent, they tend to flatten out very quickly and break very easily during heavy rains. Local farmers claim terraces are only effective on these soils where blackberry plants, plum trees, etc., are grown on the terraces. This shows that strips will be very important in controlling erosion on these soils.

Another problem of great importance is to find a variety of plants suitable for pastures on these soils. There is quite an opportunity to make pastures on some of these sands, but there is no plant adapted for pasturage that can be grown successfully. Although the livestock industry is very little developed in this section, it should be encouraged, and that could be done by the establishing of permanent pastures by the Soil Conservation Service. However, most farmers when contacted concerning erosion control, naturally want to put the most eroded or poorest land in pasture or forest, saving the best land for the big money crop, cotton. Good permanent pastures can be made on some of the eroded clay lands, but the majority of the lands that the owners desire to put in pasture are deep sands. The vine, Kudzu, has been suggested as a possibility, but it is claimed that this plant will not tolerate the continual tramping of livestock. This would require the division of the pasture by fences into several areas in order to prevent this, but the practicability of such an expense would hardly be worthwhile on land of this type.

Although these soils are very unproductive, large areas are being used today for agricultural purposes all over the world. More than 2,000 years ago, Pliny, one of the ancient Roman philosophers, speaks of the unproductivity of the white and red sands. The Bible also refers to the unproductivity of sandy lands. However, large areas of these sands will probably always be farmed. If this is true, some cropping plan should be developed or new plants introduced to enable the farmer to use this land to a better advantage.





## STRIP CROPPING TO CONTROL EROSION

- O. D. Hall -

Too much emphasis cannot be placed on planting for a maximum vegetation cover for soils that are susceptible to erosion. Vegetation increases the water holding capacity of the soil by increasing organic matter; it improves the soil structure by allowing greater moisture penetration; it binds the soil and lessens sheet erosion. The vegetation will catch soil particles and tend to form small terraces or dams and thereby slow down the flow of water and reduce erosion.

An experiment shows that where 40% of the soil surface was covered with vegetation the run-off from summer rains was 55% less and the sediment eroded was 56% less than when the vegetation covered only 16% of the soil surface.

It will be impossible to seed down solid all of the cultivated lands in thick growing crops. Without interfering with the farmers' cropping plan to any greater extent than is necessary, he is asked to sow strip crops or bands across the field, following the contours of the land. These strip or bands are from one-fifth to one-third of the cultivated acreage depending on the soil and the slope of the land. On an average the strips will be fifteen to thirty-five feet in width depending on the number of strips in the field.

The Agronomy Department has tried to select a variety of crops to be used on the strips that will make a good growth to furnish a maximum of humus, increase the amount of plant food in the soil, and at the same time crops that can be used to advantage in the farm program.

**Cowpeas and Sorghum:** - Sixty pounds of cowpeas and ten pounds of sorghum are being broadcast on each acre of strip crop where this combination is selected. The iron cowpea is being used because of its wilt and nematode resistance. Recent rains have made it possi-

ble to start seeding these crops and good stands are to be seen in many instances. This combination makes an excellent feed crop and for that reason is very popular with the farmers in the Muckalee Creek area.

Soy Beans and Sudan:- Twenty pounds of soy beans (Laredo) and twenty pounds of Sudan grass seed are being drilled in fifteen inch rows after 300 pounds of fertilizer have been applied per acre. The Laredo soy bean makes a good quality of hay, and also makes a growth that will retard erosion. With this mixture of soy beans and Sudan grass, the farmer can expect at least one ton of good quality hay from each acre.

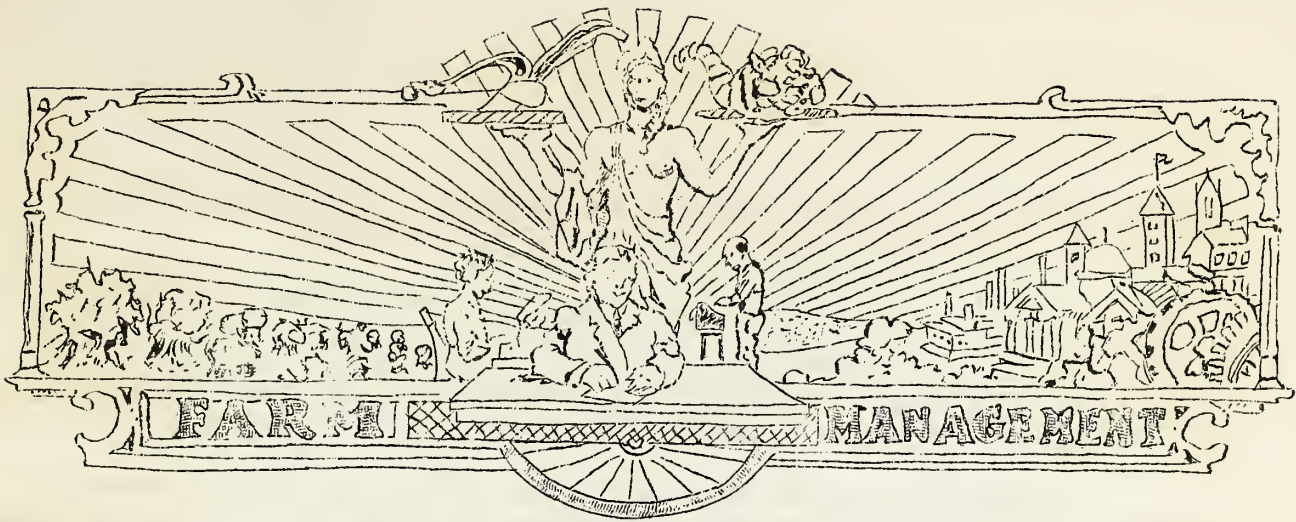
Velvet Beans:- Sixty pounds of velvet beans per acre are being broadcast and plowed in. The ninety-day speckled variety is being recommended because of its popularity in this section. This variety makes a good quality of hay. It is preferred that the crop be used for soil improvement instead of for feed, and many of the cooperators are planting velvet beans for that purpose rather than for feed.

Crotalaria:- Twenty pounds of crotalaria seed per acre are being drilled in fifteen-inch rows after 200 pounds of fertilizer have been applied. A mixture of twenty pounds of crotalaria spectabilis and twenty pounds of crotalaria striata is recommended. This crop has no value as a forage crop but because of the heavy growth produced it makes an excellent crop for erosion control. From fifteen to twenty tons of green weight per acre may be expected. In addition the seed are very valuable for bird feed and this quality appeals to many farmers who are interested in protecting quail and other wild game.

Lespedeza:- Fifty pounds of Kobe and Korean lespedeza per acre has been seeded and scratched into the soil with a harrow. On the clay soils this crop is making good growth but on the sandy soils it has not made a very satisfactory growth to date resulting from lack of moisture. Sericea lespedeza has been drilled at the rate of twenty pounds per acre after 200 pounds of fertilizer was applied. This variety is making a good growth that may be used for hay.

A mixture of twenty pounds of lespedeza, dallis grass, carpet grass, and white clover per acre has been seeded along with Bermuda grass after an application of 200 pounds of fertilizer. This mixture will furnish good grazing during the latter part of the season and will afford a complete cover for the soil.





### The Farmer's Part in Soil Erosion Control

- J. C. BRITTON -

It has been stated that man, not the weather, caused soil erosion; that there was no such thing as the washing away of the land before man came; that he alone cleared off the forests and left the land exposed to the erosive effects of heavy rains.

When man first came to this country to till the soil they found hills and hollows and valleys. It is true that most of this land, except some of the valleys, was covered with forest; but the fact that there were then hills and valleys and great alluvial plains shows that there must have been at some time very extensive soil erosion. This geologic erosion took place ages ago before there was vegetative covering; but as the erosion process continued, vegetation came and gradually stabilized the existing hollows and gullies and hill sides. This covering was so complete that erosion was stopped entirely and, after possibly thousands of years, nature had built up a deep, rich, loamy soil. At this time there were no men here who tilled the soil.

When the white settlers came they had to cultivate the land in order to make a living. In order to cultivate the land they had to clear it of its forest covering. When they did this the land was subject to erosion, and erosion did start. But those farmers did not realize it; neither did anybody else. It is true the subject was mentioned many years ago but nobody did anything about it. The farmer is the man on whom we must depend to accomplish this gigantic task. He is being shown the way by erosion control demonstrations. We are going to aid him in every way possible; but he must realize that it is his job and not wholly the job of the Soil Conservation Service. The farmer is here for all time. We feel that the farmers will continue the work efficiently after we leave. We believe the farmers are practical enough and love their country homes too well to allow their soils to be washed away.

When we get up a plan of soil erosion control for a certain farm it is necessary for us to fit this plan or program to this particular farm; also we might say to the farmer also because we must always consider the kind of farming, the plan of farming, and to some extent the conveniences of the

farmer. A plan for a dairy farmer would necessarily be different from a plan to fit a farm where grain or general crops are grown.

A cooperator contracts to carry out the provisions of our plan for a period of five years; and we believe that after he has done this he will go on with the plan indefinitely, and even to improve on the program as he goes along. The idea is to help the farmer adopt a permanent erosion control for his land. Then he can solve his own problems as they come up.

Examples of perfect erosion control on large tracts of pasture or woodland do not apply to farmers in general. They must make a living on their land and cannot, therefore, keep all of it in pasture or forest. So we must synchronize erosion control with land use.

Farmers must realize that no one method of soil erosion control used alone will bring the desired results. Terraces alone will not do it; strip crops alone will not do it. Small grain and cover crops alone will not; pastures and forest will get nearly one hundred per cent control. All the known methods of control must be practiced at the same time and all the time.

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#### EROSION CONTROL WORK IS NEVER FINISHED

(Elm Creek News, Temple, Texas)

"Let us not fool ourselves by thinking that when we have once terraced, strip-cropped, or contoured our rows we have controlled erosion for all time. Such a belief is far from being true. Erosion control work is never finished, but is continued with each planting season. When we lay off our rows on the contour we conserve moisture and help prevent erosion. Each strip of thick-rooted feed or grain crop that is planted on the contours helps to prevent soil losses. Each farming operation helps to control erosion if it is done correctly with thought to conserving the soil.

"Terraces, structures or any man-made efforts are generally very short-lived unless they receive careful maintenance and attention. Terraces that are plowed across soon become ineffective and a terracing system that is destroyed generally does more damage than no terraces.

"Terrace maintenance is easily accomplished with very little attention and work. The care of permanent structures is equally as easy. Without this small amount of attention any erosion control system is eventually doomed to failure."

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## FORESTRY AND EROSION

- W. L. Moore -

Forest growth for uncultivated land is in most cases the most economical method of erosion control. A well protected forest would be thought of as a crop that serves many purposes. It controls erosion; produces timber that may be turned into ready cash throughout the year; it provides fence posts and fuel and wood for the farm; it improves the soil; and provides a home for game.

Trees play a very important part in controlling erosion, forming a shelter over the ground and greatly retarding the velocity of wind and rain. With the force of the rain greatly reduced, the chances for it to be absorbed by the soil is increased which automatically decreases the run-off.

The "forest floor", litter and leaf mold, is very often several inches in depth and serves as a blanket over the earth surface. If this is left undisturbed, large quantities of water will be absorbed during a single period of rain fall, thereby preventing this water from rushing down the slopes carrying with it large quantities of valuable soil and leaving a number of gullies in its path. This same forest floor is very valuable as a soil builder and should be allowed to remain on the ground where it will soon decay, forming plant food essential if we are to have fertile soil.

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## WOOD

By That Parr

Have you ever stopped to wonder, as through life we rather blunder,  
of the things, their names are legion, occupying every region,  
That are of wood ?

Why the chairs in which we sit, covers 'tween which notes are writ,  
Are made of wood,  
And the moldings in our halls, and the panels on the walls,  
Are made of wood.  
Take our highly polished floors, and the casings on our doors,  
They're made of wood.  
And the lofty spars of ships, and a girl's new rayon slips -  
They're made of wood.  
And the pipes we sometimes smoke, or this so-called Koppers' coke  
That once was wood.  
When you're spanked into this clime, you're in a cradle for some time  
That's made of wood.  
And when you're ushered out, you know, why the box in which you go  
Is made of wood.

So if you're inclined to scoff, or to laugh and laugh and laugh  
At my profession - growing wood - just remember,  
That the books in which we read, once were just a little seed -  
That grew to wood.  
And the casks that hold your wine, or the clothes pins on the line  
They all were wood.  
And the cedar chests we keep are made of wood.  
And the mattress on which we sleep is stuffed with wood.  
And the handles of our knives, or the rolling pins of wives,  
They're made of wood.

So remember as you scoff, or just laugh and laugh and laugh,  
That from the time you see this earth, take my tale for what it's  
worth -  
Until through life you're swiftly whirled, this would be a darn  
poor world

Without the WOOD.

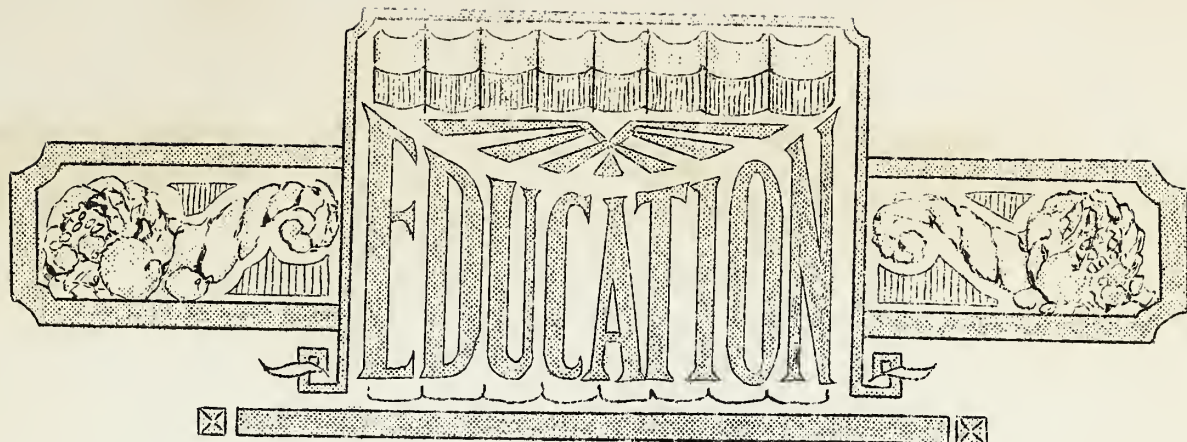
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During May a count of a number of the forest plantings was made to determine the percentage of survival. Losses have been very heavy on the slash pine plantings - only forty-five per cent were found to be living. This heavy loss was due to the fact that the seedlings had put on new growth before they were transplanted in the spring. It is planned to replant these areas during the next planting season.

The black locust plantings were found to have a survival of ninety-seven per cent. The only seedlings found dead or missing were washed up or pulled out by cattle.

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This news letter is designed primarily for the farmers in this project area, and especially for those who are cooperating with the Soil Conservation Service. Each issue will contain timely instructions and information bearing directly on the Soil Conservation work. We would like to urge that each farmer in this project area, whether he is a cooperator or not, to keep these news letters on file in a convenient place for future reference.

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A series of radio talks is being given at 12.00 o'clock (noon) Central Standard Time, by members of the Soil Conservation Staff of the Muckalee Creek Project over Station W. G. P. C. at Albany, Georgia on Tuesday of each week. Tune in on these Conservation talks.

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Summary of Work Done on the Muckalee Creek  
Soil Conservation Project  
To June 1, 1935.

Total number of farms enrolled for cooperation-----	146
representing-----	49,169 acres
Total number of farms that have been partly surveyed-----	127
representing-----	30,351 acres
Total linear feet of terrace lines surveyed-----	986,770 feet
Total linear feet of interception ditches surveyed-----	15,258 feet

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As the work on the Muckalee Project progresses there will be numerous opportunities to observe the various means of erosion control being used in the demonstration. Every one interested in this work is invited to visit the project and if the Americus office is notified in advance, tours over the area will be arranged for parties. Later on tours will be scheduled at intervals to observe the various demonstrations for each phase of the control work.

UNITED STATES  
DEPARTMENT OF AGRICULTURE  
Soil Conservation Service  
Americus, Georgia.

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